

Mitigating the Resource Curse by Improved Governmental Accounting

Summary

In most sovereign countries, sub-soil minerals are owned by the Government. The minerals are a part of the “commons,” assets owned ultimately by the citizens. The IMF, UN & IPSASB standards for government accounting, statistics and disclosure treat receipts from minerals as “windfall revenues” rather than “capital receipts on account of the sale of anon-renewable natural resource asset.” This is a major accounting error similar to the funding of pension liabilities on a pay-as-you-go basis, but with even bigger and more dangerous implications. The World Development Indicators show that the total energy and mineral depletion between 1970 and 2013 amounts to \$27 trillion. Much of this has been consumed, aided in part by government accounting for mineral receipts as revenues rather than asset sales. We therefore petition the IMF, UN & IPSASB to undertake a review of their treatment of mineral receipts in government accounting, statistics and disclosures, as well as take appropriate steps to modify the overall discourse from “windfall revenues” to “sale of non-renewable natural resource assets”.¹

Government accounting for minerals

In most countries, some level of government owns the minerals.² Constitutional provisions or the public trust doctrine (common law principle that natural resources are owned by the state as a trustee for the public) often consider minerals a part of the commons, owned by the government in name but held in trust for the people and especially future generations. The USA, Canada, Australia and India are notable partial exceptions. In the USA, land owners also own the sub-soil minerals. However, the government and Native American tribes are the largest owners of the land, and hence, the sub-soil minerals.³ In India, among several forms of ownership, the

¹IMF Fiscal Monitor -- *The Commodities Roller Coaster: A Fiscal Framework for Uncertain Times* -- October 2015. (2015). *Imf.org*. Retrieved 14 July 2016, from <https://www.imf.org/external/pubs/ft/fm/2015/02/fmindex.htm>

²Venables, A. (2016). [Using Natural Resources for Development: Why Has It Proven So Difficult?](#) *Journal of Economic Perspectives*, 30(1), 161-184. <http://dx.doi.org/10.1257/jep.30.1.161>

³*Merrion v. Jicarilla Apache Tribe*. (2016). *Wikipedia*. Retrieved 14 July 2016, from https://en.wikipedia.org/wiki/Merrion_v._Jicarilla_Apache_Tribe

dominant form is ownership by the state government, not the national government.⁴ Where governments own the minerals, mining activity transfers minerals from the natural resource commons to other owners, usually the mining leaseholder or concession holder. How are mineral receipts treated by governments?

Mixed metaphors

A metaphor is an analogy that harnesses what we know well to understand something different, a target system. Metaphorical thinking is fundamental to our cognition. It is omnipresent, and usually works completely unconsciously. Multiple metaphors may be used to provide a fuller understanding of a concept. Since metaphors are only partial parallels, it is important to recognize the limits they impose on understanding of the target system.⁵ Metaphors are used extensively in accounting.⁶

Minerals are economic resources that can yield future economic benefits, and thus, meet accountants' definition of an asset.⁷ Revenues are recurring cash flows arising from a combination of work, the use (without depletion) of capital and the use (without depletion) of land. Two metaphors are prevalent when we examine mineral receipts in the context of governments. In one metaphor, minerals are inherited assets, a part of the natural resource commons, whose value must be conserved for future generations. In the other, they are windfalls or unexpected gains and the receipts from mining are windfall revenues to be consumed. In which situation is each metaphor more applicable?

When minerals receipts are treated as “revenues” in government accounting, it lets politicians argue for extracting more and more, and to consume the proceeds. Implicitly, we are free to consume our inherited planet. This mindset also exposes the government revenues to the volatile commodity cycle. If mineral receipts are treated as “sale of assets”, other incentives are created. Should we convert mineral receipts into other assets? When should we be mining and when should we halt mining? Is the

⁴ In certain areas, tribes own sub-soil minerals. In other areas, for particular parcels of land, the individual land owner owns the mineral rights as well

⁵ Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.

⁶ Young, J. J., (2013). *Devil's Advocate: The Importance of Metaphor*, *Accounting Horizons*, 27(4), 877-886. DOI: <http://dx.doi.org/10.2308/acch-10369>

⁷ FASB/IASB Conceptual Framework (2010). <http://www.ifrs.org/News/Press-Releases/Documents/ConceptualFW2010vb.pdf>

government receiving the full value of its minerals? Are we creating new non-wasting assets of at least equal value?

Windfalls and the Revenue - Asset Sale continuum

The distinction between revenue and asset can be clearly understood in the context of a forest. Indigenous people have for millennia lived off forest produce without impairing the long term existence of the forest, so their consumption should be accounted for as periodic revenue. However, like the ancient cedars of Lebanon or clear cutting in the Amazon, it is possible to completely exhaust the forest. This circumstance would merit asset sale treatment in the sense that the revenue-generating forest asset no longer exists and no future consumption or revenue stream can be expected from the forest asset.

From this we deduce/derive the essential principle: if the contract is for extraction to the point of irreversibility (extraction of one ton of a mineral, clearing most of a forest, or a perpetual contract for beachfront), then we should treat it as a sale/transfer of asset. The contracted obligation cannot be considered simply a “use” of the asset. Only where it is a genuine agreement for use, and the underlying asset is not depleted, would pure revenue accounting be appropriate.⁸

For most uses of land, rent is properly treated as revenue, because the land can be used in a similar manner in the future. However, in the case of a mining lease, it is not just a use of land – the mineral is depleted. The mining lease is essentially a master agreement granting an option to the lessee to receive mineral ore in exchange for the royalty. Common law systems (and presumably other legal systems) have case law which clarifies that for title to the mineral to transfer from the owner of the sub-soil minerals to the mining lessee, there needs to be (a) a valid agreement / right (the mining lease or concession), (b) the lessee/concessionaire must “win the ore,” and (c) the lessee / concessionaire must pay compensation, usually “royalty.” Use of land is a poor descriptor because less mineral can be extracted in future, reducing expected future revenues from mining.

⁸ Sale of inventory, which is akin to fruit from the forest, is recorded as revenue. This is like the first case because the trees are expected to bear similar amounts of fruit in future periods.

Mineral assets are often unexpected in that they are usually either discovered (deep offshore oil for example) or a new commercial use is found (guano). Minerals are clearly assets, not the fruit (usufruct) of the land. However, since minerals (and many asset inheritances) are often called “windfalls”, it automatically triggers the associated metaphor of fruit blown off trees which passersby could and should pick up and consume. The windfall revenue metaphor is triggered. The consequences of windfalls are well known. Most lottery winners quickly spend their windfall and end up poor again.⁹

In general, the windfall revenue metaphor dominates mining terminology – mining lease, not mineral sale agreement; royalty, not purchase / sale price; mineral receipts are revenue receipts rather than capital receipts on the sale of an asset; the mineral value is treated as income for GDP purposes, not depletion of capital. We argue that this windfall revenue metaphor is the reason for most of the ills of mining, and the ills are many. It is incentivizing consumption of natural resources instead of judicious stewardship and long term investment into non-wasting assets.

A speculative history of mining and related metaphors

Minerals started out as deposits that had essentially no value. At some point, someone realized that a particular stone is pretty, or another made a sharp cutting implement or an adze – the Stone Age. Over time, the uses increased. However, manual mining was still a small scale enterprise. With the invention of smelting, the products of ore became useful, leading to the Bronze Age and trade in metals. At some point, the sovereign may have decided to tax the extraction of the mineral, especially if ore was traded rather than just the final products. This initial tax likely did not indicate whether it was an excise tax or a compensation for ownership. The current term royalty would suggest a compensation for ownership. However, the tax was probably kept at a low level as the economic rent would be low - prospecting meant trips into dense jungles, mining was manual, conversion to metal expensive in energy terms requiring deforestation of large areas, and transportation of the ore difficult and expensive.

However, certain minerals generated significant economic rent – shiny metals and sparkling stones – and this is probably the origin of “precious” metals and stones.

⁹ http://www.cleveland.com/business/index.ssf/2016/01/why_do_70_percent_of_lottery_w.html

These were also scarce, making their capital value apparent. They became a significant store of wealth – in temples and treasuries. Today, precious metals and stones are still one of the largest forms of inherited wealth as they are considered non-wasting assets, or assets that do not lose value with time. They have the added advantages of being dense, easy to conceal, travel with or exchange.

As minerals were needed for useful products, culminating in industrialization, a concern was to have enough minerals available for growth and development. Finding new mineral deposits was a bonanza for a poor developing country as was the discovery of new valuable uses for known deposits. The key objective when setting royalty rates was to ensure that mining was an attractive industry for investment in prospecting. The basis for royalty setting was a worldwide comparison, leading to a frequent race to the bottom.

As long as the extraction was minimal and the size of the deposits was large, the capital nature of the mineral was never in focus because it seemed that the fruits would be available forever. However, as demands grew exponentially, the capital nature of minerals became clearer. Today, we have reached the point where many mineral deposits have been exhausted. Mechanized mining can devour even giant ore deposits within human lifetimes. We are even running out of sand.¹⁰ Mineral receipts can no longer be considered pure revenue but rather a compensation for (partial) sale of an asset.

How Government Accounting, Statistics and Disclosure distort Mining

The general public (including the IMF and most governments) views mining receipts as “windfall revenue,” and not as receipts from the gradual sale of an asset. This error has multiple serious consequences working through different factors:

1. Governments are generally not required to prepare lists of their assets, let alone balance sheets. Consequently, government officials have strong incentives to treat asset reductions as revenue (as in this case), but not to recognize liability increases as expenses (as with pensions and healthcare benefits).
2. In government accounts, mineral royalty is reported incorrectly as revenue receipts rather than as originating from the sale of an asset. This wrongly incentivizes extraction, when conservation may be a better path.

¹⁰ <http://www.nytimes.com/2016/06/23/opinion/the-worlds-disappearing-sand.html>

3. The economic rent associated with a mineral varies widely through time. The key driver is the international price of the mineral, which often fluctuates unpredictably and violently.
4. From the previous points, mineral royalty is income that magically appears from nowhere in government coffers, and whose amount varies unpredictably – a classic windfall. Consequently, the public discourse treats mining receipts as “windfall revenue”. See the IMF’s recent publication, the Oct 2015 Fiscal Monitor on *The Commodities Roller Coaster* for numerous examples.¹¹ As we know from research into framing, terms matter.¹²
5. Studies on mental accounting show that humans violate the fungibility principle. We mentally treat \$100 from a lottery very differently from the same amount earned, the same amount saved, and the same amount inherited.¹³ As we have seen, the public discourse treats mineral receipts as lottery winnings, not as a sale of our inheritance. The marginal propensity to consume from a lottery winning is almost 100%, while the marginal propensity to consume from inherited assets is very low.¹⁴ The total assets of natural resource funds were estimated at \$4 trillion in July 2014, barely 15% of the total depletion between 1970 and 2013.¹⁵ A study of Brazil municipalities found a marginal propensity to save from mineral royalties of approximately 30%.¹⁶
6. The volatility of government revenues as a result of mineral prices is one proposed cause for the “resource curse”.¹⁷ The voracity effect results in governments increasing spending during commodity booms, when their “revenues” are high – organized groups compete to gain access to these increased

¹¹IMF Fiscal Monitor -- *The Commodities Roller Coaster: A Fiscal Framework for Uncertain Times -- October 2015*. (2015). *Imf.org*. Retrieved 14 July 2016, from <https://www.imf.org/external/pubs/ft/fm/2015/02/fmindex.htm>

¹²Tversky, A. and Kahneman, D. (1981). [The framing of decisions and the psychology of choice](https://doi.org/10.1126/science.7455683). *Science*, 211(4481), 453-458. <http://dx.doi.org/10.1126/science.7455683>

¹³Thaler, R. (1999). [Mental accounting matters](https://doi.org/10.1002/(sici)1099-0771(199909)12:3<183::aid-bdm318>3.0.co;2-f). *Journal of Behavioral Decision Making*, 12(3), 183-206. [http://dx.doi.org/10.1002/\(sici\)1099-0771\(199909\)12:3<183::aid-bdm318>3.0.co;2-f](http://dx.doi.org/10.1002/(sici)1099-0771(199909)12:3<183::aid-bdm318>3.0.co;2-f)

¹⁴Arkes, H., Joyner, C., Pezzo, M., Nash, J., Siegel-Jacobs, K., and Stone, E. (1994). [The Psychology of Windfall Gains](https://doi.org/10.1006/obhd.1994.1063). *Organizational Behavior and Human Decision Processes*, 59(3), 331-347. <http://dx.doi.org/10.1006/obhd.1994.1063>

¹⁵Bauer, A. (2014). [Managing the Public Trust: How to make Natural Resource Funds work for Citizens](#). Natural Resource Governance Institute and Columbia Center on Sustainable Investment. Page 3

¹⁶Caselli, F. and Michaels, G. (2013). [Do Oil Windfalls Improve Living Standards? Evidence from Brazil](https://doi.org/10.1257/app.5.1.208). *American Economic Journal: Applied Economics*, 5(1), 208-238. <http://dx.doi.org/10.1257/app.5.1.208>

¹⁷van der Ploeg, F. and Poelhekke, S. (2009). [Volatility and the Natural Resource Curse](https://doi.org/10.1093/oep/gpp027). *Oxford Economic Papers*, 61(4), 727-760. <http://dx.doi.org/10.1093/oep/gpp027>

“revenues”.¹⁸ However, government spending is not reduced when prices crash due to the flypaper effect – it is politically difficult to reduce subsidies.¹⁹ This creates an incentive to expand extraction at the worst moment, when commodity prices are in a slump. Both of these effects are variants of the fiscal illusion – where the public is not properly informed about the full implications of increases in government revenues – driven by the mis-classification of government receipts.²⁰ This dynamic is clearly visible in highly distressed nations like Venezuela and Saudi Arabia. Public spending expanded during the China boom, and the governments are reaping what they sowed.

7. A more pernicious issue is that without linking mineral receipts to the depletion of the mineral asset, it is difficult to evaluate how the government is performing. A windfall can hardly be budgeted. The government should strive not to lose any of its asset value, i.e., to capture 100% of the economic rent. However, the IMF tends to use the flawed metric of Government Take for ex-post analysis, which results in a poor benchmark.²¹ It is not comparable across projects, and there is no specific target that can be established.²²
8. If we treat minerals receipts as “windfall revenues,” then the “deservedness” of the “revenues” is low. It is a lottery winning after all. This reduces the legitimacy of the government capturing these amounts. Why shouldn’t the local people get all the money since they bear the brunt of the socio-environmental problems? This increases the incentives for a variety of stakeholders to lay claim to the mining receipts, often triggering armed conflicts.
9. The windfall nature of mineral receipts also makes it easy money for the politicians. This leads to poor governance as the taxation link between the citizen and the government is weakened.
10. Similar to defense expenditure, the lack of disclosure of the value of asset depletion coupled with the lack of scrutiny on “windfalls” makes it very easy for corruption to expand further. This makes minerals fertile ground for corruption and crony capitalism to bloom.

¹⁸Tornell, A. and Lane, P. (1999). [The Voracity Effect](https://doi.org/10.1257/aer.89.1.22). *American Economic Review*, 89(1), 22-46.
<http://dx.doi.org/10.1257/aer.89.1.22>

¹⁹Hines, J. and Thaler, R. (1995). [Anomalies: The Flypaper Effect](https://doi.org/10.1257/jep.9.4.217). *Journal of Economic Perspectives*, 9(4), 217-226. <http://dx.doi.org/10.1257/jep.9.4.217>

²⁰*Fiscal illusion*. (2016). *Wikipedia*. Retrieved 14 July 2016, from https://en.wikipedia.org/wiki/Fiscal_illusion

²¹ Average Effective Tax Rate (AETR) is also used, essentially the same as Government Take.

²² Basu, R. (2015). [Catastrophic Failure of Public Trust in Mining: Case Study of Goa](#). *Economic and Political Weekly* L(38), 44-51.

11. Given the large sums involved, incentives are created for miners and politicians to enter into unfair mining arrangements. The illegitimacy of such arrangements incentivize rapid extraction before the population wakes up. This in turn leads to environmental damage and human rights violations. As the local population resist, it often turns to armed conflict and civil war.
12. Since we treat the economic rent as income and not as a capital receipt, we are significantly overstating our GDP and our savings rate. When we add up mineral depletion and energy depletion for the world from 1970 through 2013 (43 years) using the World Development Indicators of the World Bank, we arrive at a total depletion of \$27 trillion. Even if we assume 30% has been saved, we have likely been overstating global income and savings by \$19 trillion to the extent that mineral asset depletion has not been correctly accounted for in GDP calculations.
13. Further, since almost all of this depletion has come from the mineral commons and a large portion is captured by a few plutocrats, mineral depletion is a key driver of the growing worldwide inequality of wealth.
14. There is a link between government accounting and law. For example, the Indian Supreme Court has not decided whether mineral royalties are a tax or a compensation for the mineral.²³ Tax has a negative connotation in the public imagination. Since royalty on minerals is perceived to be a tax, the public often support opposition by miners to increases in rates. If mineral receipts were explicitly treated as a compensation for the mineral, the public focus would change to conservation of value, the timing of extraction, and the prudent and ethical saving and investment of the ensuing capital receipts.
15. In general, the lack of a proper inventory, valuation and disclosure of government assets creates many other distortions. One estimate is that better management of the total global government assets would yield \$2.7tn.²⁴ Similar arguments have been made by others.²⁵

²³ Mineral Area Development Authority and Others vs. Steel Authority Of India and Others - CA 4056-4064 of 1999 - <http://judis.nic.in/supremecourt/imgst.aspx?filename=37940>

²⁴ <http://www.economist.com/news/finance-and-economics/21654085-cash-strapped-governments-are-leaving-riches-wayside-neglected-wealth>

²⁵ Barnes, P. (2006). [*Capitalism 3.0*](#). San Francisco, US: Berrett-Koehler Publishers

Deeper issues

There are further issues in the terminology used for minerals. We can categorize natural resources into renewable and non-renewable.²⁶ Renewable resources would include forests (provided they are not completely cut down). Most minerals are non-renewable.²⁷ Wireless spectrum is non-depleting while minerals deplete.

Similar confusion arises with the terms “rent” and “lease”. Rent when used with land implies income / expenditure. However, rent (economic rent) in the context of minerals is a capital value. Again, a lease of land implies the eventual return of the land. On the other hand, governments would be exceedingly startled if mining lessors handed over the mineral at the expiry of the mining lease. Using the same term in similar yet crucially different contexts compounds the confusion. Worse still, the government accounting standards do not clearly differentiate between these various situations, treating all kinds of use as revenue items.

Common Trust Asset metaphor

So what is the common trust asset metaphor that the Goa Foundation recommends? The common trust asset metaphor considers minerals to be assets that are inherited, depleting, non-renewable, non-wasting, and in most jurisdictions, a part of the public trust and/or a part of the commons. In the process of mining, the mineral assets are not simply being used over time and returned to the owner (like a building would be). They are being depleted – the remaining store of minerals has reduced. The owner receives royalty and other payments in compensation. And there is a transfer of title over the mineral.²⁸ This is the sale of an asset, with the resulting receipts being capital receipts on account of the sale of the mineral.

As inherited assets, minerals fall under the Intergenerational Equity principle, i.e., future generations should inherit at least the same opportunities and resources that we did.²⁹ The simple rule of thumb is that total assets must not decline.³⁰ A change of

²⁶ We recognize these are not absolute categories.

²⁷ River sand, ocean sand and groundwater arguably are renewable but over much longer time scales than forests.

²⁸ It is possible to separate the act of mining from the sale of the ore. For simplicity, we are considering the situation where a third party is carrying out mining, and thereby gains title to the mineral.

²⁹ *Equity - Intergenerational Equity*. (2016). *Uow.edu.au*. Retrieved 14 July 2016, from

form is permitted, say from gold to land. If we acknowledge minerals to be inherited assets owned in common by the Government on behalf of the present generation, which in turn is morally/ethically obliged to preserve its value for future generations, we arrive at a logically consistent metaphor which significantly reduces many of the above distortions. Minerals should be sold only when prices are high. A floor price would be demanded for government-owned minerals, which in the context of carbon, would act as the much desired carbon tax.

If mining does take place, the following steps are necessary (a) the full economic value of the mineral must be captured – losses must be avoided. (b), all the mineral receipts must be saved in a new asset that is inheritable, non-wasting and a part of the commons – owned by the state as trustee for the people and especially future generations. Permanent Funds are a modern path while traditional societies stored gold and jewelry in holy places.³¹ (c) By extension, the real income from these new commons, created from the sale of minerals, should be distributed equally to all as befits equal ownership - a commons dividend or a Citizen's Dividend, as is currently the case in Alaska.³² This ensures that the total common assets never decrease and that income is earned and shared equally by all.

The first step, zero loss mining, is made difficult by the mixed metaphors. While there are few ex-post loss calculations, the many nationalization movements worldwide suggest that the private mining companies were making excessive profits in selling minerals (causing big public losses). The consequence is crony capitalism, plutocrats and neo-colonialism.

The second step, saving all the mineral receipts, is made difficult by the windfall revenue metaphor – it is difficult to save revenues when there are so many urgent needs. This is exacerbated by the “windfall” characterization of mineral receipts. While over 50 natural resource funds exist, many designed based on intergenerational

<https://www.uow.edu.au/~sharonb/STS300/equity/meaning/integen.html>

³⁰ Hartwick's Rule in economics. See *Hartwick's rule*. (2016). *Wikipedia*. Retrieved 14 July 2016, from https://en.wikipedia.org/wiki/Hartwick%27s_rule

³¹ https://en.wikipedia.org/wiki/Permanent_fund

³² An IMF-published paper recommended a similar idea – See Subramanian, A. and Sala-i-Martin, X. (2003). [Addressing the Natural Resource Curse: An Illustration From Nigeria](http://dx.doi.org/10.5089/9781451856064.001). *IMF Working Papers*, 03(139), 1. <http://dx.doi.org/10.5089/9781451856064.001>

equity or for the benefit of future generations, the principal rationale is usually smoothing the “revenue” to the government, a counter-cyclical fund. As seen earlier, much of the wealth depletion is celebrated as higher income, creating disastrous incentives for over-exploitation and over-spending.

There are a few reasons for recommending only a Permanent Fund as the new asset, ideally invested overseas. The primary reason is to ensure that politicians do not have access to easy money from minerals. Second, this reduces the incentives for politicians to recommend conversion of minerals to cash at inappropriate times. Third, governments are usually not very efficient in their investments. Fourth, most possible investments such as in infrastructure, health and education are not “non-wasting” assets.³³ Lastly, investing overseas prevents many aspects of Dutch Disease, keeping the economy competitive.

The third step, distributing the income from the Fund as a Citizen’s Dividend in a controlled manner is rarest of all. Alaska seems to be the sole large-scale example.^{34,35} However, in Goa, India, there are over 100 “*comunidades*,” village level commons, which pay out a dividend each year. There are countless such examples globally – common pool resources, cooperatives and mutuals are some examples.

The common trust asset metaphor can be extended (with appropriate modifications) to other common trust assets like the atmosphere, spectrum, deep groundwater, forests and biodiversity, etc. This opens up the space for discussing ideas like cap-and-dividend, carbon taxes, and many other such initiatives to reduce our impact on the planet without reducing the functioning of the market.

³³ It could be argued that the first person in a family to get education is an investment. However, once the population is educated, further education is an investment that dies along with the individual.

³⁴ The Permanent Fund Dividend - <https://pfd.alaska.gov/>

³⁵ Mongolia implemented a programme of mineral-to-cash, under which mineral receipts were distributed directly to the people instead of being saved. A disastrous situation arose as political parties competed to give money to the people. When mineral prices collapsed, so did the economy. See Yeung, Y. and Howes, S. [Resources-to-Cash: A Cautionary Tale from Mongolia](http://dx.doi.org/10.2139/ssrn.2661202). *SSRN Electronic Journal*. <http://dx.doi.org/10.2139/ssrn.2661202>

When and why to extract

Arguments in favor of mining include the useful products made from the minerals, government tax receipts and generation of employment and income. Global trading of minerals, metal and finished products has made most goods widely available. As we have seen above, the mining receipts of the government are wrongly treated as revenues in the budget instead of asset sales.

The employment and income associated with the extraction activity and creation of useful products is an inherited opportunity that depletes along with the mineral. We can earn income from mining today only because previous generations did not deplete this opportunity. If we do not mine today, the next generation inherits a possibility of earning income from mining. Therefore, the potential value addition / domestic product / national income associated with mining is an inherited contingent asset. This value addition is not all income because we are simultaneously liquidating our asset, which is not deducted appropriately in computing income when we record mineral receipts as a revenue rather than the sale of an asset.

The best case for mineral extraction is when the economic rent is significantly positive and alternative non-wasting investments exist whose principal value can be protected against erosion or loss in perpetuity. This is rarely the yardstick used by governments when deciding on mineral extraction, because they are rarely interested in economic efficiency and instead driven by political expediency.

Global problems arising and the Common Trust Asset metaphor

Since mineral receipts are reported as “revenue”, and the world is in thrall with GDP growth, more mining is considered better. The overall frame is of immediate individual consumption, instead of judicious saving for our children. This has created a slew of global problems including our environmental crisis, and the great wars for control over natural resources. The loss of value from the commons to the miners (and corrupt politicians) is also a driver of the increasing inequality that Piketty and others have claimed.

The Citizen's Dividend was earlier recommended by the IMF in the context of oil in Nigeria and Iraq, the reasoning being that it would create a direct link between citizens and their inheritance, and simultaneously increasing voice through an income buffer.³⁶ From a political economy perspective, this link coupled with the disclosure of loss rates will reduce the incentives for rampant mining in violation of the law.³⁷ This would reduce the overall environmental damage and human rights violations associated with the extractive industry. And by reducing the looting of commonwealth by private interests, we reduce the present tendency towards growing inequality of wealth.

The Citizen's Dividend is also a version of a Universal Basic Income, albeit as a right of ownership, with its own financing and without a link to the poverty line. However, even at low levels, unconditional cash transfers have been shown to have remarkable positive impacts on difficult problems such as poverty, nutrition and health, inequality and entrepreneurship. Also, it acts as a safety net for the precariat, people living without predictability or security, a growing class of people who are omnipresent in developing countries.

The five key elements of the Sustainable Development Goals (SDGs) are People, Planet, Prosperity, Peace and Partnership.³⁸ Viewed in totality, implementing a better metaphor would be one massive step towards achieving our SDGs.

We also anticipate some subtler framing impacts, which would be enhanced by the common trust asset metaphor. Principally, we anticipate (a) greater fraternity among the people arising from their joint ownership, and (b) a greater sense of custodianship over minerals, and by extension, natural resources and our planet. We believe that this re-framing is necessary if mankind is to reduce consumption to sustainable levels.

³⁶ See Birdsall, N. and Subramanian, A. (2004). [Saving Iraq from Its Oil](http://dx.doi.org/10.2307/20034048). *Foreign Affairs*, 83(4), 77. <http://dx.doi.org/10.2307/20034048>; and Subramanian, A. and Sala-i-Martin, X. (2003). [Addressing the Natural Resource Curse: An Illustration from Nigeria](http://dx.doi.org/10.5089/9781451856064.001). *IMF Working Papers*, 03(139), 1. <http://dx.doi.org/10.5089/9781451856064.001>

³⁷ Orit E. Tykocinski and Thane S. Pittman (2013) Money Imbued with Essence: How We Preserve, Invest, and Spend Inherited Money, *Basic and Applied Social Psychology*, 35:6, 506-514, DOI: 10.1080/01973533.2013.840635

³⁸ <https://sustainabledevelopment.un.org/post2015/transformingourworld>

Empirical evidence

There is strong evidence that the mixed metaphors have wreaked extensive damage across the globe. We give below a brief overview of the incredible scale of the horrors.

Case Study: Goa - Mineral commons and equality

Under Article 295 of the Constitution of India, sub-soil minerals are owned by the State Governments, not the federal Government of India. Using audited financial data of the largest mining company, we found that over the last eight full years of open cast iron ore mining in Goa (2004-5 – 2011-12), the state of Goa lost over 95% of the economic rent (sale value minus full extraction costs, which would include a reasonable profit for the miner) associated with the iron ore exported.³⁹ Further, the State of Goa treated the trifles it received as windfall revenue receipts and frittered them away. Consequently, the loss to Goan children and future generations is total.

Of the economic rent, the miners captured 60%, the national government 35% and the state of Goa 5%. In absolute terms, the loss was 28% of GSDP (Gross State Domestic Product), nearly twice the Revenue Receipts of the state, and nearly three times the poverty line on a per capita basis. The amount the miners unfairly captured was more than the Revenue Receipts of the state. The amount the miners unfairly captured was 10 times their earned profit (itself deliberately set by Goa Foundation high at 20% post-tax return on assets).

Since the minerals are owned in principle equally by all citizens, the loss is suffered equally by them all. Every man, woman and child in Goa lost the equivalent of two years' income in a mere eight years, without their knowledge, let alone consent. Such a loss from the commons is effectively a well-hidden per head wealth tax or a poll tax. The common wealth of the poor is producing some very rich mining elites. This is not trickle-down economics; rather it is looting economics. It is an affront to the principles of equality of "socialist" India and contravenes Article 17 of the UN Declaration of Human Rights. It is unjust, immoral, unethical and wrong.

³⁹ Basu, R. (2015). [Catastrophic Failure of Public Trust in Mining: Case Study of Goa](#), *Economic and Political Weekly* L(38), 44-51.

Worldwide impact

We extended our Goa analysis to cover iron ore from elsewhere within India and to coal, crude oil and natural gas as well.⁴⁰ We found evidence of very high loss rates for these cases as well. Iron ore mining by a different company in other states of India showed a 92% loss rate for the mineral owners - over a 10-year period. The loss rates for coal, oil and gas exceeded 50% at the end of the decade ending in 2005-06. The China boom occurred after this and cannot be held responsible for this earlier episode.

Since royalty rates are usually set by benchmarking with other countries in a race to the bottom, these results are likely to hold worldwide and across minerals. *Rents to Riches?: The Political Economy of Natural Resource-led Development* by the World Bank reports that loss rates⁴¹ are rarely lower than 10% for petroleum and 30% for solid minerals.⁴²

The full ramifications of treating mineral receipts as windfall revenues is a loss of inherited assets, a loss of the commons. Indeed, *The Changing Wealth of Nations* study by the World Bank (2011) found that that since 1970, all countries in which rent from minerals accounted for more than 15% of GDP had negative Adjusted Net Savings.⁴³ In simple terms, they became poorer. *Where is the Wealth of Nations?*, a 2005 study by the World Bank, found that had countries like Venezuela, Trinidad and Tobago, and Gabon saved their mineral wealth as required by the IE principle and Hartwick's Rule,⁴⁴ they would now be as rich as South Korea.⁴⁵

The stunning example of Nigeria is also worth recounting. “Over a 35-year period, Nigeria’s cumulative revenues from oil (after deducting payments to foreign oil

⁴⁰ Basu, R. (2015). [Catastrophic Failure of Public Trust in Mining: Case Study of Goa](#). *Economic and Political Weekly* L(38), 44-51.

⁴¹ The study quotes government take / average effective tax rates. It can be shown that under normal circumstances, the capture rate is lower than the government take. See Basu, R. (2015). [Catastrophic Failure of Public Trust in Mining: Case Study of Goa](#). *Economic and Political Weekly* L(38), 44-51.

⁴² Barma, N., Kaiser, K., and Le, T. (2011). [Rents to Riches?: The Political Economy of Natural Resource-Led Development](#). The World Bank Group. Annex 4.2 and 4.3.

⁴³ *The Changing Wealth of Nations*. (2011). Washington, D.C.: World Bank. Page 11.

⁴⁴ “The Hartwick rule holds that consumption can be maintained—the definition of sustainable development—if the rents from nonrenewable resources are continuously invested rather than used for consumption.” Hamilton, K. (2006). [Where is the Wealth of Nations?](#). Washington, D.C.: World Bank. Page 9.

⁴⁵ Hamilton, K. (2006). [Where is the Wealth of Nations?](#). Washington, D.C.: World Bank. Page 54.

companies) have amounted to US\$ 350 billion at 1995 prices. In 1965, when per capita oil revenues were about US\$33, per capita GDP was about US\$245. In 2000, when oil revenues per capita were US\$325 per capita, per capita GDP remained at the 1965 level. In other words, all the oil revenues – US\$350 bn in total – did not seem to add to the standard of living at all. Worse, however, it could have actually contributed to the decline in the standard of living.”⁴⁶ It should be remarked that US\$ 350 billion works out to US\$ 2,500 per person (using the 2006 census population of 140 million), approximately 10 years of income in 35 years. A catastrophe.

Common Trust Asset metaphor in practice

There has been widespread recognition of the distortion, though not explicitly couched in these terms. Popular movements against mining companies due to the private capture of economic rent have a long history. In general, it has been found that better institutions lower the risk of the resource curse. Norway and Botswana, two nations that have successfully managed large mineral endowments, treat their mineral receipts as capital receipts both for their budget revenue deficit targets and for utilization of the receipts – saved into a Permanent Fund, implicitly a part of the commons. Norway has defined mineral receipts expansively to include production shares, income tax payments as well as returns from equity stakes, as they are simply tools to increase the amount of the economic rent captured by the owner, the government. Unfortunately, neither Norway nor Botswana has an explicit goal of achieving zero loss mining, i.e., 100% capture of the economic rent in all price and other scenarios. Nor does either distribute the real income as a commons dividend, instead each government appropriates the real income into its budget.

Many nations and sub-nationals have established Natural Resource Funds or Future Generations Funds. The first saving fund from minerals, the Revenue Equalization Reserve Fund was set up in 1956 in what is now Kiribati in anticipation of exhaustion of its phosphates.⁴⁷ It was set up by the UK’s colonial administration in Kiribati, as the guano deposits were on a single raised coral island with an area of 6 sq. km, visibly finite.⁴⁸ Over 50 natural resource funds exist worldwide, including happily Goa,

⁴⁶Subramanian, A. and Sala-i-Martin, X. (2003). [Addressing the Natural Resource Curse: An Illustration From Nigeria](http://dx.doi.org/10.5089/9781451856064.001). IMF Working Papers, 03(139), 1. <http://dx.doi.org/10.5089/9781451856064.001>

⁴⁷ <http://www.adb.org/sites/default/files/linked-documents/47314-001-sd-03.pdf>

following an order of the Supreme Court. In fact, a few have been set up as a part of loan conditionality from IMF/World Bank actions. However, distressingly few follow the correct fiscal rule of investing all mineral receipts into a Permanent Fund.

The present budget crisis in Alaska presents an instructive lesson. Only 25% of the receipts from oil have been saved in the Alaska Permanent Fund, while the balance 75% has been treated as revenues in the government budget. This is a clear implementation of the mixed metaphor. As a consequence, Alaska does not have a state income tax. With the recent crash in oil prices following soon after the China boom, the Alaska budget is in shreds. The politicians continue their efforts to raid the Permanent Fund, via the dividend – easy money, avoiding the politically more difficult task of instituting an income tax and providing good governance in return.

Nauru also provides a salutary lesson in mineral management. It is another South Pacific island state with large deposits of guano. Mining began in the 1906. After independence in 1968, Nauru purchased its mineral rights back from Australia. Then began a boom period till the late 1990s when Nauru had the highest per capita income in the world, simply because the receipts from phosphate were treated as revenue. The mineral receipts were so large that even after all expenses (it was for a period a 100% welfare state), a savings fund of nearly \$2 bn was built up. Alas, the phosphates are nearly exhausted and the savings fund mismanaged – it is now worth merely \$50 million. Nauru today survives from rent paid for a refugee processing center for Australia, a prison camp by another name.

Private Sector Accounting

Private sector accounting standards have always treated many leases as capital items, not operating. The relevant IFRS standards now mandate capital treatment, while the FASB standards have whittled down the exceptions. Disclosure requirements have also increased with detailed reserves and project level financials now required.^{49,50} This is far greater than the equivalent disclosures by governments. If a listed private sector entity in a developed nation accounted for minerals in the manner that governments do, they would almost certainly be committing a felony.

⁴⁹ <http://www.ifrs.org/Current-Projects/IASB-Projects/Leases/Pages/Leases.aspx>

⁵⁰ <http://www.fasb.org/jsp/FASB/Page/BridgePage%26cid=1351027207574>

Natural Capital Accounting

The concept of accounting for natural capital has been around for over 30 years. The World Bank has calculated Adjusted Net Savings, triggered by its own publication in late 1995 of *Monitoring Environmental Progress: A Report on Work in Progress*.⁵¹

The WAVES is a World Bank-led global partnership that aims to promote sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts. The UN-SEEA also accounts for various natural resources.

However, these are not sufficient. (1) By grouping minerals with other harder to value and likely lower value assets, a lot more time would be needed before techniques are refined. For minerals, we can simply adopt private sector accounting standards (and could have 30 years ago). (2) Natural capital accounts will likely remain proforma accounts or subsidiary accounts. As the public discourse is linked to standard metrics such as GDP and government budgets, it is essential that the accounting for minerals be changed in the main accounts and statistics. (3) There needs to be a wholesale change in terminology, a conscious change in metaphor used across all communication. Just publishing proforma accounts will not suffice.

Recommendations on Government Accounting, Statistics and Disclosure

In order to move governments from simply frittering away their mineral assets as windfall revenues to a more judicious saving and conservation view, we need:

1. Inventorisation, disclosure and valuation of Government mineral assets, with annual changes being consistently measured and explained.
2. All mineral receipts should be treated by the government/community mineral owner as being from the sale of common inherited assets.⁵²
3. Metaphors are cognitive systems that work unconsciously. Terminology needs to be changed across the board to create a new frame of thinking, strengthening the common trust asset metaphor. For example, “receipts on account of the depletion of natural resources” or “Sale of Natural Resources” would be appropriate instead of “windfall revenues”. Assets also need to be categorized into wasting/non-wasting, depleting/non-depleting, renewable/non-renewable, inherited/created.

⁵¹ <http://documents.worldbank.org/curated/en/378701468765915443/pdf/multi-page.pdf>

⁵² In a number of jurisdictions such as USA, Canada, Australia and India, indigenous people own the mineral rights over their lands

Better terms also need to be developed - “non-wasting” is cognitively extremely difficult. The words “lease”, “rent” and “use” in the context of minerals is misleading. A new term is needed for “economic rent”. A separate framing initiative may be required here.⁵³

4. A fiscal rule or guideline that all mineral receipts should be saved as fresh non-wasting assets. In most cases, a fund such as the Norway Government Pension Fund or the Alaska Permanent Fund would be an appropriate investment vehicle.
5. A reliable system of controls for the government fund including audited financial statements is crucial to prevent looting of the trust fund by government officials similar to the U.S. Bureau of Indian Affairs.⁵⁴
6. Following well-developed accounting practices for minerals in the private sector, these changes should be made in the main Government Accounts, not just the green accounts. This would help ensure effective framing of depletion of minerals as an intergenerational equity issue.
7. We recognize this change would create significant cascading impacts not just dealing with statistical comparability. It may impact laws, rules, regulations, even international treaties (targeting a revenue deficit for example). We would recommend a transition period of say 10 years where both sets of accounts are published to debug the system, provide comparability, and to make the necessary changes in laws, rules, regulations, treaties, etc.
8. Time is of the essence. The earlier we start, the better our chances at averting environmental disaster and achieving the SDGs.

Standards impacted

We believe that the following standards at a minimum must conform to the capital metaphor:

System of National Accounts – UN

Government Financial Statistics Manual – IMF

International Public Sector Accounting Standards, in particular IPSAS 13 – Leases

System of Environmental-Economic Accounting – UN

⁵³ [Frameworks Institute](#) and the [Public Interest Research Centre](#) are non-profits in this area

⁵⁴ https://en.wikipedia.org/wiki/Cobell_v._Salazar

We provide some detailed recommendations in the Annexure as a sample of the changes required. Our accounting recommendations are in line with private sector accounting standards, in particular the current FASB⁵⁵ and IASB⁵⁶ standards.

Conclusion

In light of the above, we request that the IMF, UN and IPSASB adopt a common trust asset approach towards the accounting, statistical and disclosure standards for minerals. It is clear – given the \$27 tn of public funds involved – that the Resource Curse is possibly the single largest issue facing resource-rich states and nations. This is more than an accounting issue. Properly speaking, it is an ethical and moral issue. It is deeply linked to whether we can as humans change our mental frame. It is also directly connected to the persistent extreme poverty and growing inequality. We therefore request the IMF, UN and IPSASB to quickly change their accounting guidance for mining leases to help these countries and their people break/dispel the curse, which has its origins at least in part in faulty government accounting. The problem is huge – billions of people suffer from the Resource Curse – and the suggested change is tiny in comparison.

⁵⁵ <http://www.fasb.org/jsp/FASB/Page/BridgePage%26cid=1351027207574>

⁵⁶ <http://www.ifrs.org/Current-Projects/IASB-Projects/Leases/Pages/Leases.aspx>

Annexure 1

IMF's Government Finance Statistics Manual 2014

A quick read through the relevant sections of the IMF's Government Finance Statistics Manual 2014 shows that the IMF has consistently taken the position that compensation for "use" of natural resources is income, and in particular "rent". While this may be true for land or even forests, it cannot be true for sub-soil resources. The planet is finite, and therefore so are sub-soil assets. A use of these resources results in depletion from the commons. This is a transfer of an asset. The accounting standards must distinguish between these cases.

Relevant sections

The IMF's Government Finance Statistics Manual 2014 provides in paragraph 5.54 (page 94):

"Taxes on exploitation of natural resources, such as land and subsoil assets not owned by government units, including taxes on extraction and exploitation of minerals and other resources, should be recorded in *other taxes on goods and services* (1146). Payments to a government unit as the owner of land and **subsoil assets** for the exploitation of such natural resources (often referred to as royalties) should be recorded in ***rent*** (1415). Payments for licenses that allow the beneficiary to carry out the business of exploitation of land and subsoil assets are classified in *taxes on use of goods and on permission to use goods or perform activities* (1145)." (Bold emphasis added, italics in original)

Thus, the IMF's default position is that payments received by the government in exchange for rights to exploit government-owned subsoil resources should be recorded as rent, a component of government revenue. Where minerals are concerned, this is patently absurd.

However, the IMF acknowledges a possible exception for the third category above (1145: Payments for licences) in paragraph 5.78 (page 98):

“**5.78** Boundary cases arise with the payments for licenses to make use of a natural resource. If the natural resource qualifies as an asset and the government controls it on behalf of the community, payments for the license **could be recorded** as the disposal of the asset when government surrenders economic control of the asset and the life span of the license and the life span of the asset are the same. If the license agreement is recorded as the sale of an asset in its own right, it should be recorded as the disposal of an asset in the category of *contracts, leases, and licenses* (31441). A license for the use of the natural resource itself for **a finite period** does not reflect a disposal of an asset and should be classified as *rent* (see paragraph 5.124). Licenses to permit the use of natural resources not under the control of government will be treated as a tax (classified under this item) in all other cases except if the license is legally and practically transferable to a third party, in which case it should be classified as an asset in the category of *contracts, leases, and licenses* (see paragraphs A4.54–A4.55).” (Bold emphasis added, italics in original).

In the first sentence of paragraph 5.78, the IMF acknowledges that mining licenses for government-owned natural resources can be recorded as asset sales in the limited circumstance that the lease term matches the asset life, as might be the case for a long-term lease of a building or aircraft. In the private sector, this transaction would almost surely be treated as an asset sale.

However, in the third sentence (referring to paragraph 5.124), the IMF says that a finite-term lease does not qualify as an asset disposal. This is also at odds with current private sector accounting, where the owner of the asset would be required to apply capital treatment. The underlying basis for this claim by the IMF is disclosed in paragraph 5.122 (page 108):

“**5.122** Rent (1415) is the revenue receivable by the owners of a natural resource (the lessor or landlord) for putting the natural resource at the disposal of another institutional unit (a lessee or tenant) for use of the natural resource in production. **Rent receivable is typically related to a resource lease** on land, **subsoil resources**, and other natural resources. In terms of the agreement, the owner can extend or withhold permission for continued use of the asset from one year to the next. It constitutes an agreement whereby the legal owner of a **natural resource**

that is considered to have an infinite life makes it available to a lessee in return for a regular payment recorded as property income and described as rent.” (Bold emphasis added).

This paragraph makes excellent sense for land, which is assumed to have an infinite life for accounting purposes (and is thus not depreciated unlike buildings). It also makes sense for the use of water from a spring. However, the life of subsoil mineral resources depends on whether they are extracted. If not extracted, then they likely have an infinite life. An extraction of minerals implies that the quantum of mineral left is irrevocably reduced by that amount. And with payment of compensation, typically royalty, it is a transfer of title of the asset to the miner. It makes no sense to treat the compensation as revenue. This is true even of a short-term mining lease.

The IMF allows for another exception in paragraph 5.124 (page 108):

5.124Rent excludes payments receivable by the owners of natural resources if such payments permit the **resource to be used to extinction**—such activity is regarded as a sale (see paragraphs 8.54 and A4.19) and possibly depletion (see paragraph 10.52) of the non produced asset. Also excluded from rent are amounts receivable by owners of natural resources when they allow the resource to be used for an extended period of time in such a way that, in effect, the user controls the use of the resource during this time with little, if any, intervention from the legal owner. This option leads to recording a transaction in an asset, classified as *contracts, leases, and licenses* (31441), for the user, distinct from the resource itself (see paragraphs 8.56 and A4.19).” (Bold emphasis added, italics in original)

The infinite life assumption of paragraph 5.122 is at odds with the possibility that the resource can be used to extinction in paragraph 5.124. While the subsoil asset may have a theoretical infinite life if left undisturbed by man, the moment some of it is consumed by mining, that portion is consumed. Nature will take millions of years to re-create the same mineral, and likely in another geographical location entirely. This is quite different from say water from a natural spring. As it rains, this water will flow. We do not exhaust it. Therefore, for minerals, we should not have the qualifiers of “used to extinction”. The moment something is extracted, that portion is extinct with no possibility of renewal.

Equally important is the second sentence in paragraph 5.124, which describes many long-term mining leases in developing countries, which are still unfortunately reported as resource rentals based on guidance such as in paragraphs 5.54 and 5.122. We note that the third sentence in paragraph 5.124 applies capital accounting for the user of the resource (the lessee), not the original owner.

We believe that one way to reduce corruption and crony capitalism is to reverse the IMF presumption of lease reporting as rent and have sale accounting (capital lease treatment) be the default with rental accounting (operating lease treatment) be the exception.

Private Sector Accounting Standards

Private sector accounting is increasingly taking this stance with the International Accounting Standard Board (IASB) requiring that lessees capitalize ALL lease rentals under International Financial Reporting Standards (IFRS) and the Financial Accounting Standards Board (FASB) narrowing the application of operating lease treatment under U.S. Generally Accepted Accounting Principles (U.S. GAAP).⁵⁷ Even under previous private sector accounting standards such as SFAS 13 (FASB 1976) paragraph 7, the transaction had to be treated as a sale if the lease extended for more than 75% of an asset's economic life (as opposed to the more lenient 100% benchmark in IMF paragraph 5.78) OR if the lessee was expected to receive more than 90% of the economic benefits of the resource estimated at inception of lease (which is again stricter than the 100% benchmark of use to extinction in IMF paragraph 5.124).⁵⁸

Action Desired of IMF

Following the above discussion, we believe that the IMF should reverse its guidance and set sale accounting as the default accounting treatment by both lessees and lessors for all leases of non produced non-renewable assets especially mineral resources. Rental accounting should only be permitted if the lessee and lessor can point to specific lease contract terms that prevent such use to (near) extinction, provide independent valuations of mineral resources before the lease contract is negotiated, provide evidence of arms-length contracting such as open auctions, independent

⁵⁷ <http://www.pwc.com/us/en/cfodirect/publications/accounting-guides/pwc-lease-accounting-guide-asc-842.html>

⁵⁸ <http://www.fasb.org/pdf/fas13.pdf>

monitoring arrangements to track compliance with lease terms, independent valuations of minerals extracted, sold and retained minimally at an annual frequency on a project level, and establish sufficiently large penalties on the lessee to deter use to extinction.

Following classification of these lease transactions as sales, the sold mineral resource should be removed from the balance sheet and the related cash inflows be reported as non operating (or investing) cash flows. But this assumes that these assets were on the government's balance sheet before the lease transaction. The IMF should require that proved mineral resources be reported on the balance sheet at net recoverable value (i.e. present value of estimated sales less cost to recover) when discovered. Subsequently, these net recoverable values should be periodically re-estimated to account for changes in market prices and recovery costs, with the updated values either disclosed in footnotes or preferably reported on the balance sheet with the cumulative gains/losses disclosed as net revaluations.

In addition, the IMF should encourage, if not require, government reporting on the use of the funds received from each asset sale (following guidelines in the U.S. Federal Funding Accountability and Transparency Act of 2006). The last provision will empower concerned citizens to monitor government waste and abuse of public assets (see e.g. <https://www.nationalpriorities.org/interactive-data/database/>).